

CLAIMS

What is claimed is:

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1. A coating composition useful for forming a film, comprising, in admixture, a resin and finely divided barium sulfate that has been surface treated with an organosilane containing an amino moiety.

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2. The coating composition according to claim 1, wherein a film formed from the coating composition has a blistering degree of 8 or greater, wherein the blistering degree is determined according to ASTM 714 with the proviso that the blistering degree was assessed numerically wherein the qualitative ASTM 714 assessment of blistering degree of no blisters is assessed as 10, "Few" is assessed as 8, "Medium" as 6, "Medium Dense" as 4, and "Dense" as 2.

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3. The coating composition according to claim 1, wherein the coating composition has a viscosity more than 50% lower than a viscosity measured for the same coating composition except prepared with the barium sulfate lacking surface treatment with the organosilane having the amino moiety, wherein the viscosity measurement is made in centipoise with a Brookfield RVT Rotational Viscometer.

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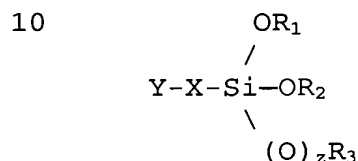
4. The coating composition according to claim 1, wherein the barium sulfate has a median particle size in the range of approximately 0.1 to approximately 40 microns.

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5. The coating composition according to claim 1, wherein the organosilane containing an amino moiety includes an amino group selected from at least one of a primary, a secondary, or a tertiary amine.

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6. The coating composition according to claim 1, wherein the organosilane containing an amino moiety is represented by the following formula:



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wherein R_1 , R_2 , R_3 each independently is selected from hydrogen, lower alkyl, aryl, lower alkylaryl, or lower arylalkyl, z is 0 or 1, Y is selected from the group consisting of a substituted or nonsubstituted amino-
20 containing group, and X is a non-substituted or substituted hydrocarbenyl linking group.

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7. The coating composition according to claim 1, wherein the organosilane containing an amino moiety is added onto the surface of the barium sulfate when surface treated with the organo silane in an amount of about 0.1% to about 2%, based on dry weight of the barium sulfate before the addition.

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8. The coating composition according to claim 1, further comprising a pigment including the finely divided barium sulfate that has been surface treated with the organosilane containing the amino moiety.

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9. The coating composition according to claim 8, wherein the pigment comprises about 1 to about 65% by volume of the coating composition.

10. The coating composition according to claim 8, wherein the pigment has a total volume, and the barium sulfate comprises about 1 to about 100% of the total volume of the pigment.
11. The coating composition according to claim 1, wherein the resin comprises a curable resin.
12. The coating composition according to claim 1, wherein the resin comprises a curable resin selected from the group consisting of epoxy resins, polyurethane resins, alkyd resins, melamine resins, phenolic resins, polyester resins, individually or in combinations thereof.
13. The coating composition according to claim 11, wherein the curable resin comprises an epoxy resin and a curing agent.
14. The coating composition according to claim 1, wherein the coating composition comprises a coalescing system.
15. The coating composition according to claim 1, wherein the resin comprises a thermoplastic resin.
16. The coating composition according to claim 1, having a pigment volume concentration (PVC)/critical pigment volume concentration (CPVC) ratio value of 0.1 to 0.95.
17. A dry film, comprising a dried coating having an average film thickness of about 1×10^{-3} to about 25×10^{-3} inch and the coating having a composition comprising a thermoset resin into which is dispersed finely divided barium sulfate having surfaces bearing organosilane containing an amino moiety.

18. A method of providing a coating film on a solid substrate surface comprising:

applying a coating composition on the substrate surface in film form, wherein the coating composition comprises a resin system, and a dispersion in the resin system, wherein the dispersion comprises a pigment including barium sulfate particles surface treated with an organosilane containing an amino moiety, and

drying or permitting drying of the film to form a dried film from the applied coating composition, which film is attached to the solid substrate surface.

19. The method of claim 18, wherein the resin comprises a curable resin is selected from the group consisting of epoxy resins, polyurethane resins, alkyd resins, melamine resins, phenolic resins, polyester resins, individually or in combinations thereof.

20. The method of claim 18, wherein the resin system comprises a mixture of first and second components, wherein the first component comprises a curable resin, and the second component comprises a curing agent for the curable resin.

21. The method of claim 18, wherein the resin system comprises a coalescing system.

22. The method of claim 18, wherein the resin comprises a thermoplastic resin.

23. The method of claim 18, wherein the applying is performed effective that the coating composition forms a dry film having an average film thickness of about 1×10^{-3} to about 25×10^{-3} inch.

24. The method of claim 18, wherein the contacting of the substrate surface with coating composition is repeated at least once.

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25. The method of claim 18, wherein the contacting of the substrate surface with the coating composition comprises using an application technique selected from at least one of brushing, spraying, blade coating, rolling, or dipping.

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26. The method of claim 18, wherein the substrate surface is a metallic surface.

27. The coated substrate product of the method of claim 18.